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The experience and psychological impact of a sharps injury on a nursing student population in the UK

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The experience and psychological impact of a sharps injury on a nursing student population in the UK

ABSTRACT

Aims

The aims of this study were to explore the experience and psychological impact of sustaining a sharps injury within a nursing student population in the UK.

Design

A qualitative approach was taken, utilising two methods to gather data namely a Twitter Chat and qualitative interviews

Methods

A Twitter Chat was orchestrated to investigate the experiences of sharps injury with nursing students and Registered Nurses nationwide (n=71).

Interviews were conducted with nursing students from a University in the UK who had sustained a sharps injury (n=12) to discover their experiences and the impact of the injury. Findings were synthesised and examined.

Results

Some nursing students reported psychological impacts after sustaining the sharps injury, which affected both their professional and personal life. The qualitative findings were synthesised into eight themes.

Conclusion

The study concluded that sharp injuries can have many psychological impacts on the individual nursing student and that the necessary support should be available.

Background

Two studies have specifically explored the experiences of nursing students who had sustained sharps injuries. Naidoo (2010) used a qualitative phenomenological approach with a sample of eight nursing students in South Africa. From the study, four themes were reported 'traumatic incident'; 'reaction to the traumatic incident'; 'intervening factors' and the 'need for support'. Amukugo et al (2018) identified three themes when exploring the experiences of nursing students and sharps injuries in Namibia. The themes were 'experiences of nursing students on needle-stick injury'; 'factors contributing to needle stick injury' and 'recommendations made by student nurses to improve prevention and management of needle stick injuries'. Until now, there has been no qualitative investigation of the impact of sharps injuries relating to nursing students in the UK.

THE STUDY

Aims

The aims of this study were to explore the experience and psychological impact of sustaining a sharps injury within a nursing student population in the UK.

METHODS

Design

This study utilised two qualitative methods.

A Twitter Chat was orchestrated to investigate the experiences of sharps injuries with nursing students and Registered Nurses nationwide. A Twitter Chat is a public Twitter conversation around one unique hashtag. This hashtag allows individuals to follow and participate in a discussion about specific topics with these interests (Smarty, 2012). Semi-structured interviews were then conducted with nursing students who had sustained a sharps injury to discover their experiences and the impact of the injury.

Setting and participants

Participants for the Twitter Chat were obtained from a convenience sampling accessing the NurChat (NurChat, 2015) webpage where the Twitter Chat was held. This was through snowballing sampling when tweets advertising the Twitter Chat were shared. For the interviews, a volunteer sample of nursing students was obtained when participants volunteered themselves following the completion of a local survey investigating the incidence and type of SIs within a nursing student population. The inclusion criteria was nursing students studying the BSc (Hons) Adult Nursing programme within the UK.

The majority of the Twitter Chat participants were nursing students (n=46). The participants are presented in Table 1.

Table 1. Participants of the Twitter Chat

Participant role	Number
Student nurse	46
Nurses	17
Other	8
Total	71

Semi-structured interviews were then conducted with 12 nursing students, mostly female (n=11), with ages ranging from 21-46 years. Full demographic details of participants are provided in Table 2.

Table. 2 Biographical details for individual participants for the interviews

Participant	Gender	Year of student when interviewed	Year of student when injury occurred	Age of student when interviewed	Interview date	Equipment
P1	Male	2 nd	1 st	46	03/05/16	Glass vial
P2	Female	3 rd	1 st & 2 nd	22	03/05/16	Clean IV needle & Glass vial
P3	Female	3 rd	3 rd	21	05/05/16	Clean needle
P4	Female	2 nd	1 st	33	17/05/16	Used needle
P5	Female	2 nd	2 nd	22	17/05/16	Clean IV needle
P6	Female	3 rd	2 nd	39	24/05/16	Glass vial
P7	Female	3 rd	2 nd	21	09/06/16	Clean IV needle
P8	Female	3 rd	1 st	26	05/07/16	Glass vial
P9	Female	3 rd	1 st	41	07/07/16	Used needle
P10	Female	2 nd	2 nd	24	13/10/16	Used needle
P11	Female	1 st	1 st	23	26/10/16	Glass vial
P12	Female	2 nd	2 nd	20	23/3/17	Used needle

Eleven out of the twelve participants were in the first or second year of undergraduate training when the injury occurred and four participants out of the twelve sustained an injury from a used needle.

Data collection

A Twitter Chat was conducted on the NurChat webpage in October 2015 and the tweets produced during the Twitter Chat were transcribed for analysis. The Twitter Chat was devised utilising the guidance provided by Smarty (2012) who explains five steps to an effective Twitter Chat. These five steps are: understand how a Twitter Chat works; form an action plan; announce and promote the Twitter Chat; conduct the Twitter Chat and then finally summarise, store and analyse the data.

Semi-structured interviews were conducted between May 2016 and March 2017 utilising an interview schedule devised from a literature review and results from a survey completed for the purposes of a PhD thesis. The interviewee was welcomed into the interview room and given a Participant Information Sheet which contained information regarding confidentiality, anonymity, storage, retention and security of data, the right to withdraw and support that was available from University wellbeing services following the interview if needed.

All of the interviews were conducted by the researcher face-to-face with the participant. As the location can have a major effect on the interview and the interviewee (Gagnon et al., 2014), this was carefully considered. All of the interviews occurred on the University campus, in a quiet room free from disturbance. The interviewee was able to choose a convenient time for the interview. If the participant was willing to participate in the interview, they were given a consent form to complete and sign. Each interview was recorded on a small digital recorder and lasted between 12 and 34 minutes.

Data analysis

There is a dearth of evidence relating to how qualitative data derived from a Twitter Chat should be analysed. The Twitter Chat and interviews were transcribed and

analysed using thematic analysis (Braun and Clarke, 2006). The Twitter Chat produced 548 tweets. Credibility was enhanced by triangulation of sources (by utilising a Twitter Chat and interviews) and analysts triangulation (a fellow PhD student aided the analysis). There was also prolonged engagement. There was a clear audit trail throughout the study which enhanced dependability. Confirmability was aided by a concurrent confirmability audit by PhD supervisors. A pilot study was completed which highlighted minor changes to the questions. Data saturation was achieved after 12 interviews.

The analysis of the Twitter Chat resulted in four themes that emerged from the data. These can be seen in Table 3.

Table 3: The four themes emerging from the Twitter Chat

The injury	After the injury
Prevention of the injury	The impact of the sharps injury

The analysis of the interviews initially produced seven themes which are presented in Table 4.

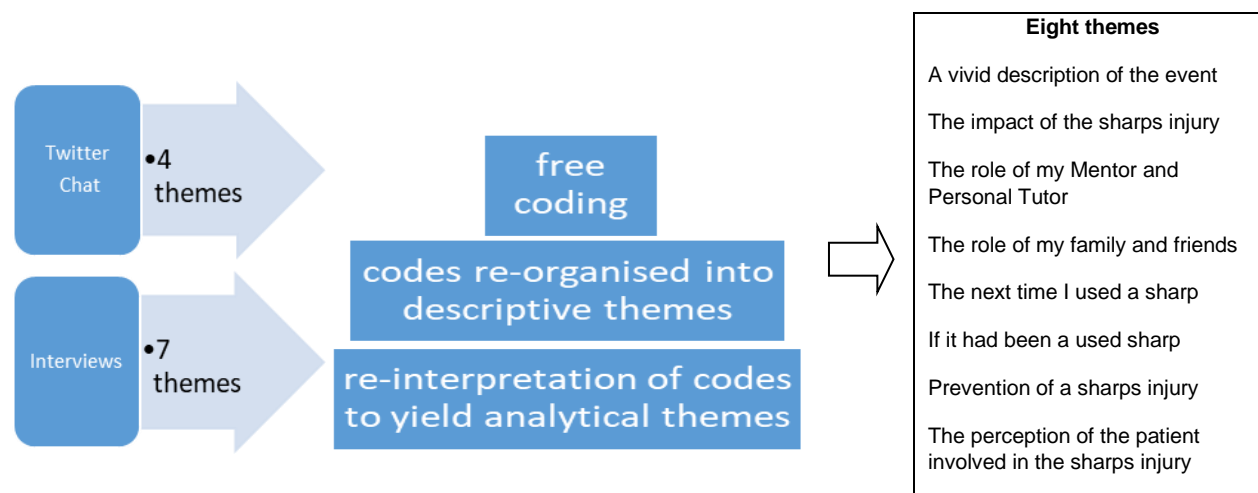
Table 4: The seven themes emerging from the interviews

Theme	Number of extracted significant statements
The impact of the sharps injury	142
A vivid description of the event	76
Next time I use a sharp	74
The role of my mentor	60
If it was a dirty needle	46
The role of my family and friends	43

The perception of the patient involved in the sharps injury	25
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There followed a process of qualitative synthesis to review the eleven themes from the two data sources. This synthesis process created a final eight themes, with associated sub-themes. This was conducted based upon 'Thematic synthesis' devised by Thomas and Harden (2008) and presented by Barnett-Page and Thomas (2009) as part of a systematic review exploring methods of synthesising qualitative data. The findings of the Twitter Chat and interviews were revisited and free coding undertaken. The codes were re-organised into 'descriptive themes'. These themes were then further interpreted to yield 'analytical themes'. This synthesis process created eight themes. This process can be seen in Figure 1.

Figure 1: The process of Thematic Synthesis



Ethical considerations

Approval for the study was granted by the University Ethics committee. The participants of the Twitter Chat were informed via the webpage that the information gained from the Twitter Chat would be used for a study and they had the right to

request removal of their tweets. The participants of the interview were given an information sheet and signed a consent form before the commencement of the interview.

Presentation of findings

In order to preserve the anonymity of participants who took part in the Twitter Chat, each participant was given a code (NS = nursing student; TC = Twitter Chat) and a number, e.g. NS TC1. Participants within the interviews were given a code (NS = nursing student; Int = Interview) and a number e.g. NS Int1.

Theme One - ‘A vivid description of the event’

Participants provided detailed accounts of the sharps injury episode. This included recalling the exact time of day, the type of minor injury and the amount of blood. Students described the type of equipment involved, including broken glass when opening a vial of medicine:

“when opening the glass vile of medication it has shattered instead of break cleanly” (NS TC3)

and also when drawing up with an intra-venous needle, preparing intra-muscular injections, giving a subcutaneous injection, and when using a scalpel blade. Additionally, scissors, blood lancets and razors were mentioned.

Nursing students explained the exact location where the sharps injury occurred within hospital settings, the community and within simulation wards. Common places within hospitals were treatment rooms and at the patient’s bedside in multiple specialties. The amount of sharps injuries was linked to the abundance of injections in those areas. Sharps injuries within the community settings happened in Residential homes and community hospitals. The community was considered a

prime location because nursing students felt out of their comfort zone in unfamiliar surroundings:

“...you are a guest in someone’s house, not always an organised place to work hazards” (N TC7).

Student nurses felt that sharps injuries occurred within clinical skills simulation wards due to the anxiety and stress of being observed by lecturers.

The potential causes of sharps injuries involving nursing students were identified.

These included ‘inexperience’, a ‘lack of training’ and a ‘lack of knowledge’. Student nurses mentioned the pressure of being a 2nd year student was a cause, due to the opportunities to give injections in that year and over-confidence. Poor sharps technique were also highlighted as a factor, such as disposing of others sharps, poor assembly of sharps equipment and the unnecessary dismantling of sharps equipment.

Worryingly some student nurses had observed nurses re-sheathing the needle and doctors and other healthcare workers leaving sharps in trays or on patient beds:

“not all student nurse sharps injuries are from sharps being used by student themselves” (N TC7)

Occasionally the patient was viewed as the cause due to a lack of subcutaneous fat, being feisty and by leaving sharps around in their own environment. The needle or equipment was sometimes seen as the cause due to poor disposal methods, over-full sharps bins and finding needles in rubbish bags.

Theme Two - ‘*The impact of the sharps injury*’

The participants stated that there was a multitude of emotions displayed when they acquired a sharps injury. Common emotions were feeling worried, stressed, anxious

which sometimes lasted for up to two years. The worry was sometimes until blood tests were known, but also about how the University or mentor may react:

"I was worried about...the University...how they might respond"
(NS Int4)

"I felt maybe it was gonna affect my performance in terms of grading for when it came to the OARs [Ongoing Achievement Record] being done"
(NS Int5)

Embarrassment was another emotion recalled in relation to the nursing student being viewed as less competent in practice. Some felt shocked and stunned for a short period of time, and also frustrated and annoyed with themselves. There was a sense that they had let people down and were a failure. This rarely caused panic, but commonly crying and a loss of confidence. The loss of confidence sometimes lasted up to two months after the injury. Some nursing students felt a low mood and felt very isolated, especially on the occasion when they were in placement a distance away from home and family.

Having flashbacks about the incident was another impact. Some nursing students suffered flashbacks ranging from a couple of days to up to two months after the injury. This sometimes involved reliving the pain and discomfort of the injury:

"...however sometimes just when I'm drifting off to go to sleep...I feel the...needle going into my finger...I'm just drifting off to sleep sometimes but I wouldn't say I'm having nightmares about it and worried about it or...I would say five or six times that's happened" (NS Int4)

A final impact of the sharps injury was having to stop an activity. An example given was having to stop donating blood for a period of time.

Theme Three - 'The role of my Mentor and Personal Tutor following the injury'

Nursing students recounted how their mentor had been supportive following the injury. This involved being calm, encouraging and normalising the injury:

“one of the nurses on the ward erm, she cut her finger a couple of weeks ago, erm, so that made me think, oh, you know, I’m obviously not the only person who has ever done it” (NS Int6)

The mentor commonly encouraged the nursing student to use sharps again when they may have been reluctant to do so. Mentors were praised as being competent, proficient, and knowledgeable regarding assessing, treating the injury and following hospital guidelines.

There was a worry that the injury may affect the relationship with mentor, but commonly it stayed the same or improved. Some nursing students spoke of the mentor using humour to calm the situation and by sharing their experience of having a sharps injury. Sometimes the mentor used the sharps injury as an opportunity to educate the nursing student.

Although sometimes reluctant to tell their Personal Tutor at the University, nursing students spoke of how they had been supportive. This included asking them pertinent questions, advised them to complete the necessary documentation and referring them to the Occupational Health service.

Theme Four - ‘*The role of my family and friends*’

Telling nursing student colleagues about the sharps injury conjured up many emotions for the participants. Some students felt apprehensive, embarrassed and silly. Telling nursing student peers was sometimes viewed as a learning experience and a chance to educate others. Nursing student colleagues commonly assumed

that the sharps injury was caused by a needle, and so learning occurred.

Participants felt supported and reassured when telling their peers, as they sometimes realised that they were not the only one. Humour, commonly seen as a coping mechanism and a sense of camaraderie, was sometimes experienced:

"I did tell my friends and they just laughed at me which was fine...it didn't affect me though...everyone made a joke out of it"
(NS Int2)

There were a few reasons why some participants did not tell non-nursing friends. These included a feeling that friends would not be able to comprehend the sharps injury and because they may have felt foolish.

Telling family members was sometimes traumatic and the worst part of the whole experience. There was a sense of feeling foolish, sad and being disappointed with themselves. Some participants spoke of how supportive their family was following the disclosure. This was by the family being loving and reassuring to the participant. This was helped by the fact that the family were impartial and not involved in the episode.

One participant had not told anyone about the injury except the researcher because of feeling embarrassed, as they felt that they were the only one and perceived themselves to be incompetent. Being on clinical placement far away from home made the incident more difficult for some nursing students:

"...you can't really sort of tell family and when you are on placement you are all alone...it can be really isolating and having no one to really talk to and try and make light of the situation is hard" (NS Int5)

Theme Five - *'The next time I used a sharp following the injury'*

Following the sharps injury there was a sense that the participant's practice and performance had improved primarily in relation to the use of sharps, but also in other aspects of nursing care. This included the handling and disposing of sharps more safely and double-checking the procedure to reduce the risk of injury. This improved practice also involved being more conscious of hazards by distracting a patient before an injection. There was also a sense that the sharps injury had improved some participant's general nursing practice and skills as well by making them more aware of optimal ways of performing various nursing skills.

Performing a procedure involving a sharp after the injury conjured up many emotions such as anxious and feeling nervous. This sometimes lasted for up to two years after the injury. There was also occasionally a feeling of trepidation:

"I was a bit cautious about doing it again but then I did get over it and I did...do it again and then I practiced and my confidence grew"
(NS Int7)

Avoidance of sharps was expressed by some participants. This ranged between 20 minutes to four weeks. Avoidance was achieved by giving excuses, not volunteering or allowing the mentor to perform skills using the sharp. Not all of the participants avoided sharps following their injury. There was a feeling that they '*need to do another injection*' (NS Int9) and to '*get back on the horse*' (NS Int10).

Theme Six - *'If it had been a used sharp'*

Participants discussed different responses had a used sharp been involved in the injury. There was a sense that the participant's responses would have been different

if the sharp had been used before the injury. This was primarily due to the potential contamination risk from the sharps injury, and not knowing what types of disease could be carried within the blood of another person, as this participant explains:

“Well it would be a completely different ball game then of course...if it had been in a patient I’d have no idea whether they’re an inoculation risk...to be honest I think it would be much worse situation...had the needle gone into the patient first and then into me” (NS Int5)

Participants spoke of the potential to feel a massive knock in confidence, worry and anxiety if the sharp had been used. The worry and concerns would have been about the risks of blood borne viruses and contamination if a used sharp had been the cause of the injury. The worry was not only concerning potentially acquiring an infection and having an illness during their lifetime, but passing that infection onto other people. The hypothetical impact could then be on other family members and the problems and issues that could create. Other potential emotions expressed would be shock, panic and feeling scared, which would be more long term.

Regarding telling others about the injury, many participants felt that this would be different if the sharp had been used. The story may have been told differently as an injury with a used sharp would not have been seen as a laughing matter:

“...if it was something more substantial then it’s not appropriate to be making a joke about it and things...I would have responded differently” (NS Int2)

The avoidance of certain situations and experiences if the sharp involved in the injury had been used was also expressed by some participants. Some nursing students felt that they would have ‘*avoided people*’ (NS Int2) and avoided ‘*doing sharps for a lot longer*’ (NS Int8). Some participants also said that they would have avoided placement because of a plummeting in ‘*confidence*’ (NS Int5), ‘*fear of*

repetition’ of an injury, possible *‘treatment’* (NS Int11) following the injury and the amount of *‘anxiety’* (NS Int8) they may suffer as a consequence.

Theme Seven - ‘Prevention of the sharps injury’

The prevention of sharps injury was commonly mentioned by participants. This included the correct and safe usage of sharps bins during a procedure:

“the sharps bin is your friend – keep it by your side...” (N TC5)

The disposal of sharps was also considered an imperative way of preventing sharps injuries involving nursing students. There was consensus that healthcare workers should always dispose of their own sharps, stating that it should be a matter of urgency. Participants spoke of good preparation before starting the procedure, so that correct disposal was at the forefront of people’s mind:

“make sure that you handle sharps carefully and dispose of them safely into a sharps bin immediately after use” (NS TC1)

Education was felt to be an important factor in the prevention of sharps injuries regarding nursing students. It was felt that nursing students should have regular education regarding sharps within the clinical skills simulation ward, and all healthcare workers should have regular updates. The education should involve emphasising not to re-sheath needles and the importance of complying with policies and procedures.

Nursing students felt that safety devices were an essential way of preventing sharps injuries. Good leadership was also considered imperative by facilitating the

adherence of staff to policies and procedures. Having respect for sharps was thought to be an essential part of the prevention of sharps injuries:

“Respect them [sharps] proportionately to the amount you fear the idea of a bad incident with them” (NS TC9)

This is because some participants felt that nursing students did not understand how dangerous sharps were and suggested that nursing students should thus treat sharps with an abundance of respect and caution (NS TC9; NS TC30; N TC7).

Theme Eight – ‘*The perception of the patient involved in the sharps injury*’

The perceived risk of seroconversion following an injury with a used sharp by participants and their mentor was occasionally influenced by their perception of the patient. One nursing student perceived that she was not at risk because the patient did not fall into a certain category in society who they thought may be at high risk of having an infection, in this case a drug user or a prostitute. In this instance the patient was an older person living in a Residential Home:

“...it was the perception of the patient...I did make a joke of it ‘Well she doesn’t look like a crack addict...I’ll be fine...she doesn’t look like she was ever a prostitute or you know, took crack or anything’ so I’m not massively worried” (NS Int9)

A mentor also perceived the patient to be low risk as the patient was elderly. Hence the threat of seroconversion was perceived as slight, as the participant involved explained:

“I was quite interested as I didn’t know obviously what was going to come back, what the risks are because my Mentor said to me, ‘you know, she’s an elderly lady erm, so the risks could be minimal, erm, they are most likely to be minimal” (NS Int12)

Conversely, another participant who had had a sharps injury involving a used sharp did perceive the patient as potentially a source of infection and disease. This made the individual very anxious as they dramatically declared that they '*thought I was going to die of some horrible disease that I'd given myself*' (NS Int4).

Discussion

Eight themes were reported from the qualitative data that was collected within this study. The primary comparative findings identified within a systematic review (Hambridge et al, 2016) are from the study conducted by Naidoo (2010) and from a more recent study conducted by Amukugo et al (2018).

The theme '*A vivid description of the event*' described within this study has echoes to the theme of '*Traumatic incident*' identified by Naidoo (2010) and 'experiences of nursing students on needle-stick injury' identified by Amukugo et al (2018). There are some similarities within this theme, such as the participants providing rich detail, knowing the precise date and time and the setting of the scene. This study though offered additional rich information regarding the type and the extent of the injury; the procedure and device involved; the location of the injury and the potential causes of it. The issue of inexperience as a cause in this study links with the findings of Amukugo et al (2018) who reported nursing students lack of awareness of hazard precaution due to a lack of training and a lack of experience.

The theme '*The impact of the sharps injury*' identified within this study links with the theme '*Reaction to the traumatic incident*' described by Naidoo (2010). There were similar finding reported within both studies with regards to some of the emotions expressed such as being shocked, crying, and having anxiety. These also link to the findings of Amukugo et al (2018). This study though described more emotions

experienced such as embarrassment, frustration, annoyance, having flashbacks, and feeling upset for the patient and fellow HCWs. Amukugo et al (2018) similarly reported emotional problems such as depression and a fear of contracting or spreading blood borne viruses such as HIV / AIDs.

The Naidoo (2010) study described a lack of support from some staff and family members, whereas within the theme of '*The role of my family and friends*' within this study, healthcare workers and family were seen as being very supportive. Within the Naidoo (2010) study participants mentioned the side effects of post-exposure prophylaxis drugs, but none of the participants within this study had to commence that type of medication. Additionally, one participant within the Naidoo (2010) study stated that they had considered suicide, but this reaction was not mentioned by participants within this study.

The theme '*The role of my mentor and Personal Tutor*' within this study described the very supportive nature and competence of the participant's mentor and Personal Tutor following the injury. Naidoo (2010) though reports how some nurses were not very supportive of the nursing students and were not always aware of treatment and counselling procedures. Both studies found the Personal Tutor to be reassuring and supportive. Amukugo et al (2018) also reported the need for proper support for students including counselling and assistance by the University and hospital staff.

Within this study, the theme '*The next time I used a sharp following the injury*' offered rich data regarding the emotions felt when involved with procedures involving sharps. Naidoo (2010) briefly mentions participants feeling distressed when re-entering practice, though this study richly describes the perceived improvement of

practice, the range of emotions expressed, and occasionally the avoidance of procedures involving sharps.

The other themes identified within this study, namely '*If it had been a used sharp*', the '*Prevention of the sharps injury*' and '*The perception of the patient involved in the sharps injury*' appear to be themes used to describe and experience which were not reported within the Naidoo (2010) study. Amukugo et al (2018) though reported recommendations made by student nurses to improve management and prevention of sharps injuries, such as continuous training and education. This link with the findings of this study.

Limitations

The interviews were only conducted locally. Hence, there are issues with the transferability of the findings (Lincoln and Guba, 1985), as all of the participants were from one university in a certain part of the UK. Great efforts were made to ensure potential organisational and interpersonal power issues would not be a concern, issues may have existed within the interviews (Moule and Goodman, 2014). This was due to the researcher being a lecturer at the university where nursing students were the participants. This included creating a compassionate connection and creating a non-threatening environment for the interviews. Irrespective of this, some participants may have withheld other important aspects about their experience due to issues related to the relationship between the researcher and the nursing student.

Conclusion

Nursing students gave a vivid description of the event explaining the various types of injuries which occurred, and the varied procedures which they were involved with

when the injury happened. The sharps injury had an impact on the participants which affected their professional and private lives. Many different emotions were conjured up following the injury and were experienced for variable periods of time.

Occasionally the emotions would be severe with some nursing students suffering from flashbacks about the sharps injury experience. The role of the mentor and Personal Tutor was highlighted which exemplifies the important role of supervisors during and after the injury. The supportive nature of the mentor and other healthcare workers was illuminated, linked to their competence with dealing with the sharps injury situation. Peers and kin played a role in the nursing student's life following the injury. Nursing student friends used humour and were supportive when the nursing student involved in the injury gave an account of their experience. The next time the nursing student used a sharp illuminated how practice had changed and the emotions felt when the nursing student was faced with performing a task involving a sharp in the future. If it had been a used sharp various hypothetical emotions would have been expressed which may have been more severe than having an injury with clean equipment. Various ways in which sharps injuries involving nursing students can be prevented from occurring were suggested. Emphasis was placed upon education, simulation, good leadership and the adherence to policies and procedures regarding sharps usage. The opinion of the patient had an influence on the apparent severity of the injury for the participant. There was a perception that there was a low risk involved in the sharps injury if the patient was an older person, as opposed to being high risk if the patient was a 'crack addict' or 'prostitute'.

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